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The Trusted Integrator for Sustainable Solutions

September 25, 2009

Mr. Jon Gulch
United States Environmental Protection Agency
9311 Groh Road
Grosse Ile, Michigan 48138

Subject: Site Assessment Letter Report
Westover Landfill Site
Oregon, Lucas County, Ohio
Technical Direction Document No.: S05-001-0906-025
Document Control No.: 680-2A-AETT
Work Order No.: 20405.012.001.0680.00

Dear Mr. Gulch:

The United States Environmental Protection Agency (U.S. EPA) Region V Emergency Response Branch (ERB) tasked the Weston Solutions, Inc., (WESTON®) Superfund Technical Assessment and Response Team (START) to assist in performing a site assessment at the Westover Landfill Site (Site) located in Oregon, Lucas County, Ohio. Under Technical Direction Document (TDD) number S05-001-0906-025 U.S. EPA instructed START to collect samples of surface water, sediment, leachate and storm water effluent for laboratory analysis; static water level measurements from a perimeter leachate collection system; photographic documentation of site conditions; and to document and characterize any potential threats to human health, welfare, and the environment at the Site. U.S. EPA and START personnel mobilized to the Site and conducted the site assessment tasks from August 18, 2009, through August 20, 2009, under the direction of On-Scene Coordinator (OSC) Jon Gulch.

This letter report discusses the Site description, site assessment, sample collection, analytical results, threats to human health and the environment, and conclusions and recommendations. In addition, this letter report includes three attachments. Attachment A provides figures for this report. Attachment B provides a photographic log of site assessment activities and Site conditions. Attachment C provides the summary tables of laboratory analytical data for samples collected during the site assessment. Attachment D provides the validated laboratory analytical report for samples collected during the site assessment.

SITE DESCRIPTION

The Site, located at 820 Otter Creek Road, Oregon, Lucas County, Ohio is in a mixed industrial, residential and agricultural area (Attachment A, Figure 1). The Site is bounded to the north by Millard Avenue S, to the east by Otter Creek Road, to the south by a Buckeye Pipeline petroleum transfer station and York Road, and to the west by Otter Creek. Otter Creek is a tributary of Maumee Bay and Lake Erie 2.5 miles to the northeast of the Site. The Site was owned by the

former Westover Corporation and was operated as a licensed municipal solid waste landfill from 1975 through January 1, 1987. The Westover Corporation was dissolved in 1990. According to Ohio EPA records, no regulated monitoring or maintenance of the engineered systems has taken place since the end of the closure care and monitoring period on January 1, 1990. In 2006 the Site was purchased by local resident Seth Corely.

The entire 10.5 acre Site is situated within the watershed of Otter Creek. The western limit of waste placement was within 40 feet of the Otter Creek bed according to Ohio EPA records. Aside from the typical municipal and industrial solid wastes, several permits to install (PTI's) were approved by Ohio EPA for disposal of wastewater treatment lagoon sludge, polyurethane dust and other industrial wastes. One known instance of hazardous waste disposal occurred July 9, 1979, through July 11, 1979, when five dump truck loads of sandy soil contaminated with approximately 200 gallons of 25% hexavalent chromium were accepted. Based on the date, the hexavalent chromium waste was likely filled at an elevation below original grade and below the elevation of the Otter Creek bank. Ohio EPA records also indicate that approximately fifty 55-gallon drums of asbestos containing waste was disposed in the landfill in 1981.

A Site closure plan was approved by Ohio EPA on July 30, 1985. The closure plan required Westover Corporation to develop a long term leachate management plan and install a combined leachate and landfill gas collection system four feet above existing grade near the perimeter limits of waste placement. A leachate dewatering sump was also required by the approved closure plan if the leachate collection system was found to be inadequate to control leachate outbreaks. Ohio EPA has no record of a long term leachate management plan submittal or installation of the leachate dewatering sump.

Storm water control structures were designed for a 25 year, 24 hour storm event. Surface grade on the landfill cap slopes westward towards Otter Creek, and towards letdown structures at the northwest, southeast and southwest corners of the Site. Storm water is discharged directly into Otter Creek via outfall pipes at the northwest and southwest corner of the Site. However, the Site entrance area near the northeast is graded to drain into the roadside ditches at the corner of Otter Creek Road and Millard Avenue S.

The sediment chemistry and water quality of Otter Creek has been evaluated in numerous privately- and federally-funded studies with involvement from the U.S. EPA Great Lakes National Program Office (GLNPO), Ohio EPA, the City of Toledo, the City of Oregon, and the Duck and Otter Creek Partnership, a non-profit organization. A large array of petroleum and chemical industrial properties, pipelines, railroads and other landfills have occupied portions of the Otter Creek watershed. The studies have demonstrated that Otter Creek sediments have been impacted by a wide range of point-source releases and earlier decades of historical industrial direct-discharge practices. Otter Creek sediments are known to contain elevated concentrations of polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), cationic metals (cadmium, copper, lead, nickel, silver and zinc), oil and grease.

The Ohio Environmental Protection Agency (Ohio EPA) Northwest District Office (NWDO) transmitted a referral package to U.S. EPA on June 18, 2009, for consideration of a removal assessment. During a prior site inspection on May 3, 2007, Ohio EPA personnel had identified actual and potential threats of release of liquid leachate directly into Otter Creek, including:

- leachate being discharged directly into Otter Creek from a leaking plug in the storm water outfall pipe near the northwest corner of the site;
- evidence of uncontrolled leachate outbreaks on the northern slope and at the top of the storm water letdown at the southwest corner of the Site;
- evidence of surface leachate outbreaks flowing directly into the northern and southern storm water control structures;
- standing liquids within the perimeter collection system and no evidence of the leachate dewatering sump required by the Site closure plan;
- perimeter fencing was in disrepair and completely down at the northeast and southeast corners of the Site;
- 2:1 or greater slope on the west side of the landfill bordering Otter Creek;
- animal burrows in the west slope of the landfill cap.

U.S. EPA SITE RECONNAISSANCE

On August 18, 2009, U.S. EPA and WESTON START members mobilized to the Site. After a brief safety meeting and equipment calibrations, personnel gained access to the property through a downed portion of perimeter fencing at the northeast corner of the Site, near the intersection of Otter Creek Road and Millard Avenue S. U.S. EPA and WESTON START personnel walked over the landfill cap to collect initial air monitoring readings, develop a sampling strategy, collect GPS coordinates of Site features, and collect photographic and written documentation of Site conditions. Air monitoring equipment utilized by START during the Site Assessment included a RAE Systems, Inc. MultiRAE Plus loaded with default sensors, a Photovac MicroFID I/S flame ionization detector and a Landtec GEM 2000 landfill gas monitor.

During the initial site reconnaissance START located the manhole at the southeast corner of the property as described in the Ohio EPA referral package. The manhole cover was padlocked shut and START did not remove the padlock or cover during the Site assessment. START located the majority of the methane vents, but several of the vents along the eastern and western perimeter were surrounded by dense vegetation and were not found. The methane vents were observed to be in good or fair condition with the exception of two broken PVC risers and missing rain caps. Static water level measurements were collected from nine of the methane vents with a Solinst Model 101 water level meter and are notated on Attachment A, Figure 3.

A selection of photos from the Site reconnaissance is provided in Attachment B. The following conditions were identified and documented during the initial site reconnaissance:

- unmaintained vegetation overgrowth on top of the landfill cap including deciduous trees up to approximately 25 feet in height, conifer and sumac trees, and invasive phragmites grasses;
- uncontrolled fugitive landfill gas emissions from the northwest storm water outfall pipe with air monitor readings ranging up to:
    - 50,000 ppm (instrument maximum range) total combustible organic compounds with the MicroFID;
    - 57,000 ppm methane (CH_4) and 20,000 ppm carbon dioxide (CO_2) with the GEM 2000, and;
    - 23 percent lower explosive limit (LEL) with the MultiRAE Plus;
- uncontrolled leachate-contaminated water discharging continuously into Otter Creek at a rate of 0.20 – 0.22 liters per minute from the northwest storm water outfall pipe;
- staining of surface soil and stressed vegetation down-gradient of the northwest storm water outfall pipe;
- unrestricted access to the property and breached fencing;
- signs of animal habitation on the landfill cap, including deer tracks and numerous daytime bedding areas;
- at least four areas of distressed vegetation on the landfill cap;
- three outwash areas with downed vegetation and surface erosion on the western slopes of the landfill cap adjacent to Otter Creek;
- a 1-foot long shattered segment of buried PVC pipe amongst the rip rap at the base of the southeast letdown structure that was believed to be integral to the perimeter leachate collection system;
- two methane vents with broken PVC risers and missing rain caps;
- START was unable to closely inspect the storm water outfall to Otter Creek located at the southwest corner of the Site due to vegetation and steepness of the adjacent slope.

INVESTIGATIVE SAMPLE COLLECTION

Based on the observations made during the Site reconnaissance, the OSC directed START to collect one liquid sample and one surface soil sample at the northwest storm water outfall pipe and two liquid samples from the perimeter leachate collection system. START was also directed to collect surface water samples and sediment samples from two locations in Otter Creek,

upstream and downstream of the Site. START sample locations are denoted on Attachment A, Figure 4.

On August 18, 2009, START utilized a peristaltic pump with disposable HDPE tubing to collect effluent from the leaking steel storm water outfall pipe adjacent to Otter Creek into laboratory-provided containers labeled "WLF-LL-01." A strong odor of landfill gas was noticed near the leaking pipe during sample collection. Photos were collected of orange staining and sheen on surface soil and vegetation immediately down-gradient of the leaking outfall pipe to the east bank of Otter Creek. START collected a sample labeled "WLF-SS-01" from the stained surface soil two feet west of the leaking outfall pipe using a laboratory-provided Terra Core soil sample kit.

On August 19, 2009, the OSC selected one methane vent along the western perimeter (sample labeled "WLF-LL-02") and one methane vent along the southern perimeter (sample labeled "WLF-LL-03") as suitable access points for the collection of liquid samples from the perimeter leachate collection system (Attachment A, Figure 2). START utilized disposable HDPE bailers to collect standing liquids from the perimeter leachate collection system into laboratory-provided containers. At both locations, START observed a surface sheen and an odor of diesel- or gasoline-range organics from the light gray liquid extracted from the perimeter leachate collection system.

On August 19, 2009, START collected surface water samples from two locations in Otter Creek denoted on Attachment A Figure 2. Surface water sample "WLF-SW-01-MS" was collected from Otter Creek at the York Road bridge. Surface water sample "WLF-SW-02" and duplicate sample "WLF-SW-02-DP" were collected from Otter Creek at the Millard Avenue S bridge. The flow velocity of Otter Creek was measured at 0.67 meters per second at the time of sample collection with a Marsh-McBirney Flo-Mate 2000 electromagnetic flow meter. Surface water was collected into disposable 1-liter HDPE containers and transferred to laboratory-provided containers.

START also utilized a YSI 556MPS to monitor surface water parameters in Otter Creek at the upstream and downstream sample locations and from the liquid discharged from the leaking outfall pipe adjacent to Otter Creek. The following readings were recorded:

TABLE 1
SURFACE WATER PARAMETERS FROM OTTER CREEK AND STORM WATER

Location	Temperature	Conductivity	Dissolved Oxygen	pH	Oxidation-Reduction Potential
Northwest Outfall Pipe	21.1°C	5453 µS/cm	2.40 mg/L	7.66	72.0

Upstream in Otter Creek (York Rd)	24.4°C	426 µS/cm	7.18 mg/L	8.07	58.1
Downstream in Otter Creek (Millard Ave S)	23.4°C	416 µS/cm	6.83 mg/L	7.72	66.5

Notes:
°C = degrees Centigrade
µS/cm = micro Siemens per centimeter
mg/L = milligrams per liter

On August 20, 2009, START collected two sediment samples from Otter Creek at the locations denoted on Attachment A Figure 2. Sediment was collected with disposable HDPE scoops into dedicated aluminum trays, homogenized and transferred into sample containers and Terra Core sample kits. Sediment sample "WLF-SD-01" and duplicate sample "WLF-SD-01-DP" were collected approximately 50 feet south of the Millard Avenue S bridge over Otter Creek. Sediment at this location was black sandy clay in 1.5 feet water depth with a slight odor. Sediment sample "WLF-SD-02-MS" was collected approximately 50 feet south of the York Road bridge over Otter Creek. Sediment at this location was clean brown medium sand in 1.0 foot water depth.

ANALYTICAL RESULTS

Samples were packaged in coolers with ice and shipped under chain of custody at the end of each day to TriMatrix Laboratories, Inc. in Grand Rapids, Michigan. Summary tables of the analytical data for each of the investigative samples collected by START are included in Attachment C. A copy of the validated analytical report is available for review in Attachment D.

THREATS TO HUMAN HEALTH AND THE ENVIRONMENT

Factors to be considered in determining the appropriateness of a potential removal action at a Site are delineated in the National Oil and Hazardous Material Contingency Plan at 40 *Code of Federal Regulations* (CFR) §300.415(b)(2). A summary of the factors applicable to this Site is presented below.

- **Actual or potential exposure of nearby human populations, animals, or the food chain to hazardous substances, pollutants, or contaminants**

  Dense residential population and potentially sensitive populations including children and elderly are located in close proximity, within a 0.6 mile radius south and west of the Site. The perimeter fencing is inadequate to deter trespassing or vandalism. Signs of wildlife habitation within the Site perimeter included deer tracks, numerous daytime bedding areas and animal burrows on the landfill cap. Leachate outbreaks on the landfill slopes

are direct contact exposure hazards to any humans and wildlife traversing the landfill cap. Flammable landfill gases and leachate-contaminated water are actively being discharged adjacent to Otter Creek, outside the perimeter fencing.

- **Actual or potential contamination of drinking water supplies or sensitive ecosystems.**

  Uncontrolled leachate outbreaks on the landfill slopes have gravity-drained into the engineered storm water control structures that discharge directly into Otter Creek. Otter Creek is a tributary to Maumee Bay and Lake Erie 2.5 miles downstream and to the northeast of the Site. The drinking water supply inlet for the City of Toledo and surrounding municipalities is situated in Lake Erie, downstream of the Site.

  Sample results indicate that the storm water discharge from the northwest outfall pipe exceeded the State of Ohio Generic Unrestricted Potable Use Standards in Ohio Administrative Code (OAC) 3745-300-08(D)(3)(b) and 3745-300-08(D)(3)(c) for concentrations of arsenic and benzene. The conductivity readings collected from the northwest storm water outfall also confirmed elevated concentrations of dissolved ions when compared to the conductivity readings collected from surface water in Otter Creek (Table 1). Free flowing leachate-contaminated water was observed to be discharging continuously into Otter Creek at a rate of 0.20-0.22 liters per minute from the formerly-plugged steel storm water outfall pipe near the northwest corner of the Site. Leachate outbreaks have also been documented at the top of the southwest storm water letdown structure that discharges into Otter Creek via the outfall at the southwest corner of the Site.

  The landfill contains an estimated volume of 10 million gallons of liquid leachate. Several factors have increased the threat of a release of all or a portion of this estimated volume directly into Otter Creek: 1) the Site has not been actively maintained or monitored since 1990 and considerable vegetative overgrowth has taken root on the landfill cap, including taproot trees up to 25 feet in height that may compromise the integrity of the cap; 2) leachate outbreaks on the landfill slopes suggest high internal head pressures and the development of cracks or other pathways to the surface in the clay cap, potentially due to settlement of the waste mass and infiltration of vegetative root systems; 3) several direct pathways exist for the discharge of runoff and fugitive leachate liquids into Otter Creek, including one formerly-plugged storm water outfall pipe that has cracked and developed a chronic release of leachate-contaminated water and landfill gases. Further failure of this plugged outfall could potentially facilitate the release of the excess liquid head stored within the landfill. Sample results from the site assessment demonstrate that leachate stored within the landfill exceeds the State of Ohio Generic Unrestricted Potable Use Standards in Ohio Administrative Code (OAC) 3745-300-

08(D)(3)(b) and 3745-300-08(D)(3)(c) for concentrations of antimony, arsenic, cadmium, chromium and lead.

- **Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release.**

  The bulk of the material disposed in the landfill was municipal and industrial solid wastes. However, some hazardous wastes were accepted for disposal at the Site, including five dump truck loads of sandy soil contaminated with approximately 200 gallons of 25% hexavalent chromium, and several instances of disposal of wastewater treatment lagoon sludge, industrial polyurethane dust and asbestos. Any uncontrolled release from the Site may potentially contain dissolved or suspended solids derived from any of the known or unknown small-quantity hazardous substances disposed in the landfill.

- **Weather conditions that may cause hazardous substances, pollutants, or contaminants to migrate or be released.**

  The existing storm water control system contains leachate-contaminated water and is plugged at the northwest corner outfall into Otter Creek. This aging and unmaintained system may not tolerate a large influx of storm water from a significant flood or rainwater event. The geometry of the waste mass and cap design at the western side of the landfill along Otter Creek exceeds a 3:1 slope ratio, and is believed to be at least 2:1. A slope stability analysis has not been completed as part of this assessment, and according to Ohio EPA records the original engineered design met the requirements for a 25 year, 24 hour storm event. However, under saturated conditions from flooding or heavy rainfall the settling, steep western slope may experience isolated slope failures near any of the observed surface outwash pathways to Otter Creek. The dense tree growth along the western side of the property may limit the probability of complete slope failure.

- **Threat of fire or explosion**

  The threat of a conventional fire or a subsurface landfill fire at the Site is believed to be low. However, high concentrations of flammable landfill gases are actively being vented from the storm water outfall at the northwest corner of the Site. Air monitoring readings adjacent to the failing plug in the storm water outfall pipe ranged up to 57,000 ppm methane and 23 percent LEL.

CONCLUSIONS AND RECOMMENDATIONS

In conjunction with this site assessment, WESTON START identified and documented the following hazards at the Site:

- unrestricted access to the Site and breached fencing;
- chronic discharge of leachate-contaminated water from the storm water control system directly into Otter Creek;
- high static water levels within the leachate collection system and therefore high leachate head within the landfill interior;
- damaged portions of PVC components of the perimeter leachate collection system;
- steep 2:1 slope of the waste mass and cap along the western perimeter adjacent to Otter Creek;
- significant vegetative growth on the landfill cap, including taproot trees up to 25-feet in height;
- close proximity to residential properties to the south and west of the Site;
- likely presence of at-risk human populations, including children and the elderly, in close proximity to the Site;
- close proximity of the Site to the drinking water supply inlet for the City of Toledo and surrounding municipalities, Maumee Bay and Lake Erie 2.5 miles downstream of the Site.

Based on the information gathered during the site assessment and the analytical results, WESTON recommends the following:

- Improvements to the restriction of site access including replacement or repair of damaged or missing portions of the perimeter fencing;
- Removal and disposal of excess liquid wastes from the perimeter leachate collection system;
- Removal and disposal of all trees and invasive phragmites vegetation from the landfill cap, and reseeding with appropriate cap vegetation;
- Reinforcement or replacement of the leaking plug in the storm water outfall pipe at the northwest corner of the Site to halt the chronic discharge of leachate-contaminated water to Otter Creek and prevent a complete failure of the plug;
- Improvements to the clay cap and existing storm water control structures to reduce leachate outbreaks at the surface and prevent infiltration into the storm water control system and Otter Creek;
- Improvements to the leachate collection system to repair damaged PVC components at the southeast corner and western perimeter;

- Installation of the leachate dewatering sump originally required by closure plan approved by Ohio EPA on July 30, 1985;
- Development of the long term leachate management plan originally required by the closure plan approved by Ohio EPA on July 30, 1985;
- A slope stability analysis of the 2:1 western slope to evaluate the threat of slope failure and the feasibility of potential remedies such as shoring or re-grading of the slope geometry;
- Requirements for the property owner or other potentially responsible party to comply with the State of Ohio NPDES industrial permit requirements for storm water discharge from the Site to Otter Creek;
- Installation of an array of groundwater monitoring wells around the perimeter of the Site to evaluate the impacts of the Site on local groundwater and Otter Creek through any potential subsurface infiltration pathways.

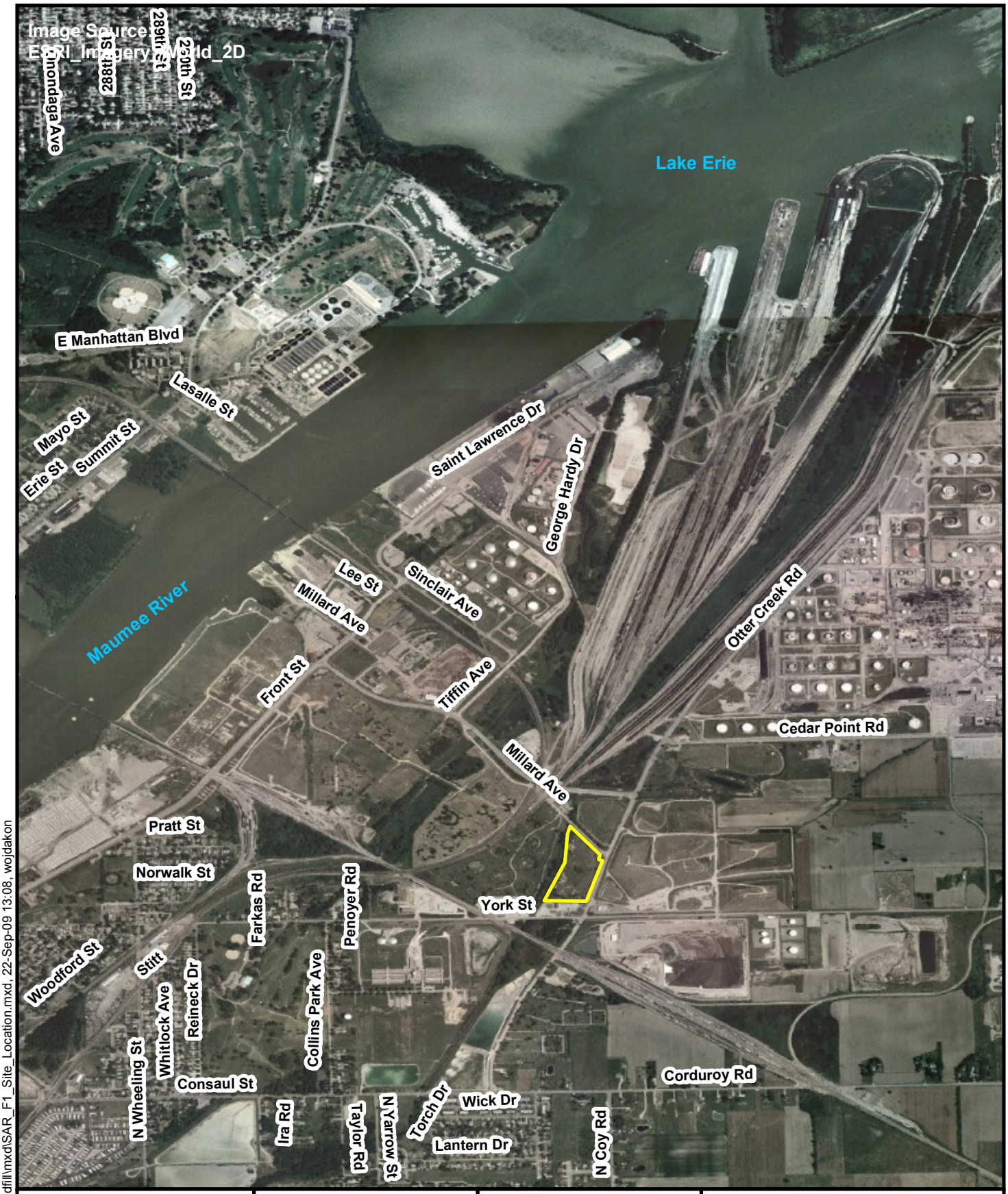
The preparation of this letter report serves as the final TDD deliverable. All tasks pertaining to this TDD have been completed. If there are any questions or comments regarding this report, please contact WESTON START at either of the below phone numbers.

Very truly yours,
WESTON SOLUTIONS, INC.

Alexandra Clark
WESTON START Project Manager
(313) 739-2533

Attachments:
Attachment A – Figures
Attachment B – Photo Log
Attachment C – Analytical Summary Tables
Attachment D – Validated Laboratory Analytical Report

cc: WESTON START DCN File



Legend

Site Boundary

0 2,000 Feet

N

Prepared for:
U.S. EPA REGION V
Contract No.: EP-S5-06-04
TDD: S05-0001-0906-025
DCN: 680-2A-AETT

Prepared By:
WESTON SOLUTIONS, INC
750 E. Bunker Court
Suite 500
Vernon Hills, Illinois 60061

Figure 1
Site Location Map
Westover Site Assessment Report
Oregon, Lucas County, Ohio

File: D:\Westover_Landfill\mxd\SAR_F1_Site_Location.mxd, 22-Sep-09 13:08, wojdakon

File: D:\Westover_Landfill\mxd\SAR_F2_Site_Features.mxd, 22-Sep-09 20:10, wojdakon

Prepared for:
U.S. EPA REGION V
Contract No.: EP-S5-06-04
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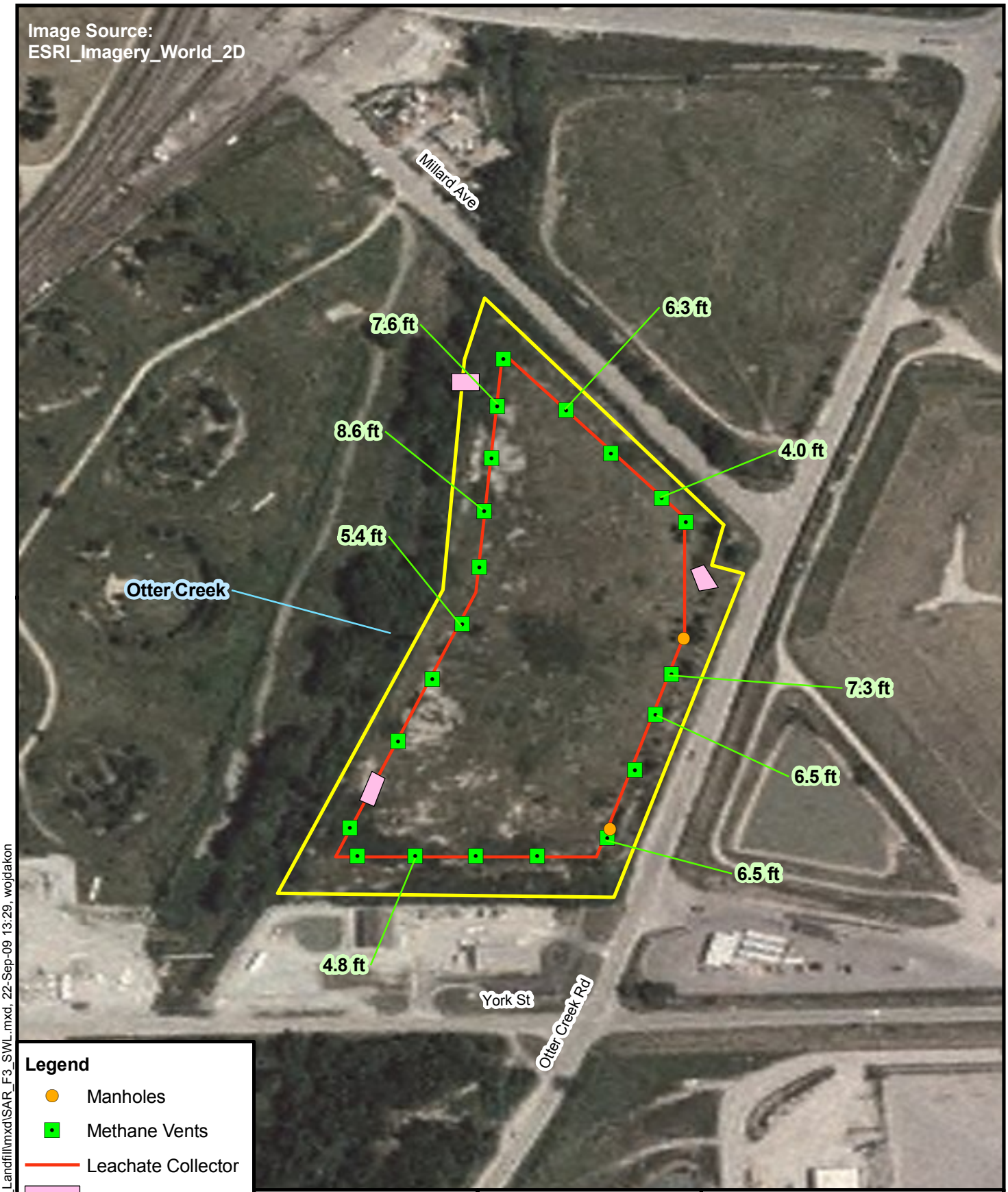
Prepared By:
WESTON SOLUTIONS, INC
750 E. Bunker Court
Suite 500
Vernon Hills, Illinois 60061

Figure 2
Site Features Map
Westover Site Assessment Report
Oregon, Lucas County, Ohio



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Prepared for:
U.S. EPA REGION V
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DCN: 680-2A-AETT

Prepared By:
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Suite 500
Vernon Hills, Illinois 60061

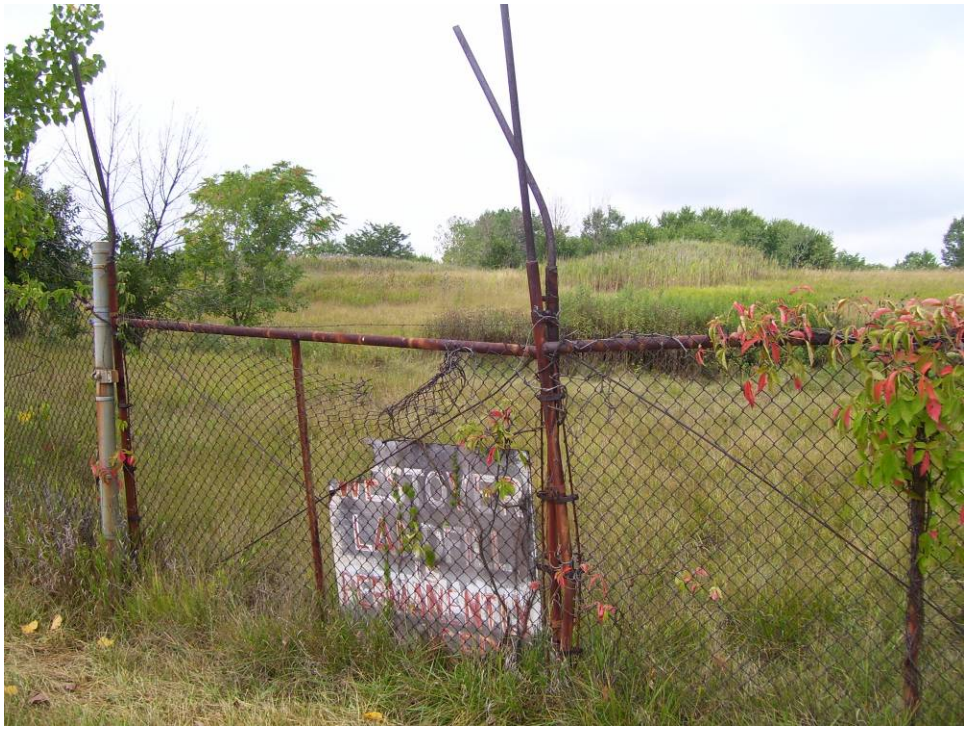
Figure 3
Static Water Levels Map
Westover Site Assessment Report
Oregon, Lucas County, Ohio

ATTACHMENT A

FIGURES

ATTACHMENT B

PHOTOGRAPHIC LOG



Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 001 **Date:** 8/18/2009
Direction: West **Photographer:** Matthew Beer
Subject: Westover Landfill northeast gate and signage

Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 002 **Date:** 8/18/2009
Direction: Southwest **Photographer:** Matthew Beer
Subject: U.S.EPA and START entering landfill over downed fencing at the northeast corner

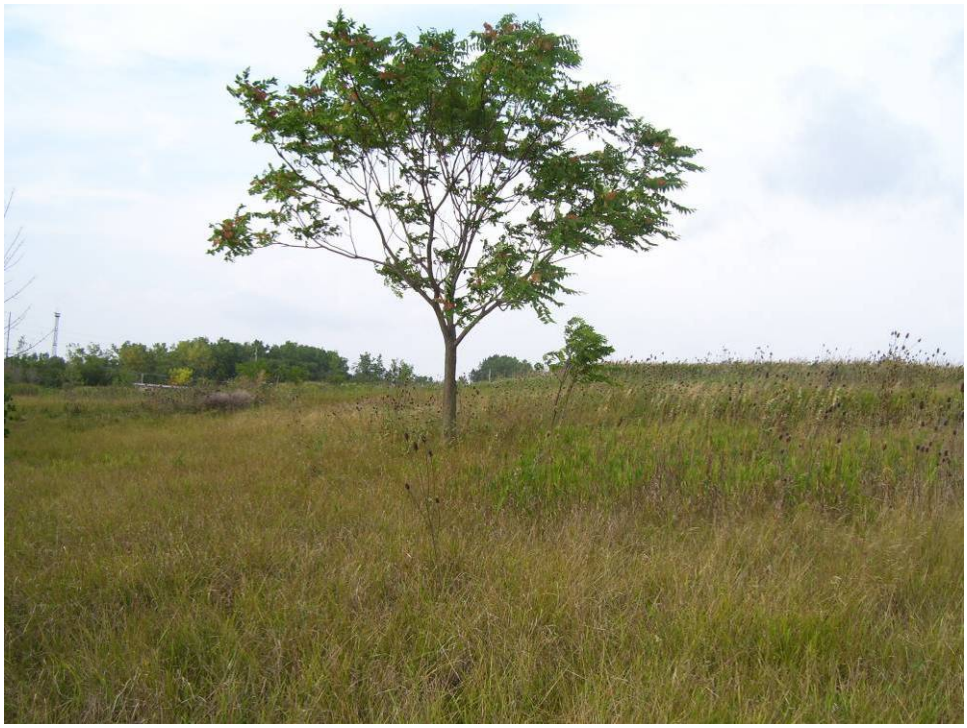


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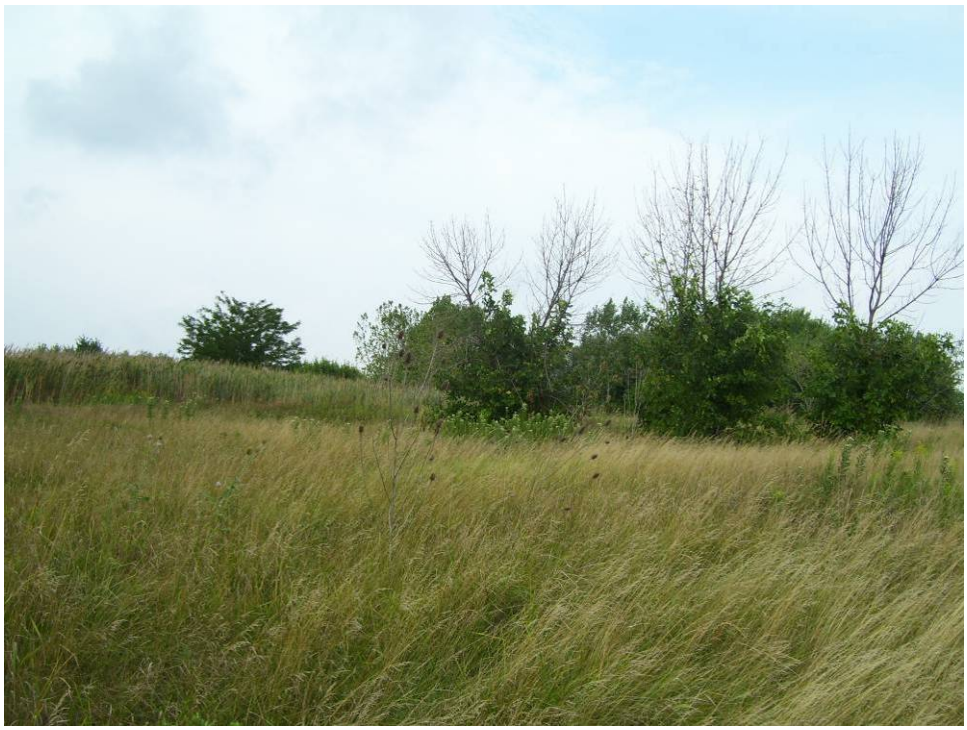
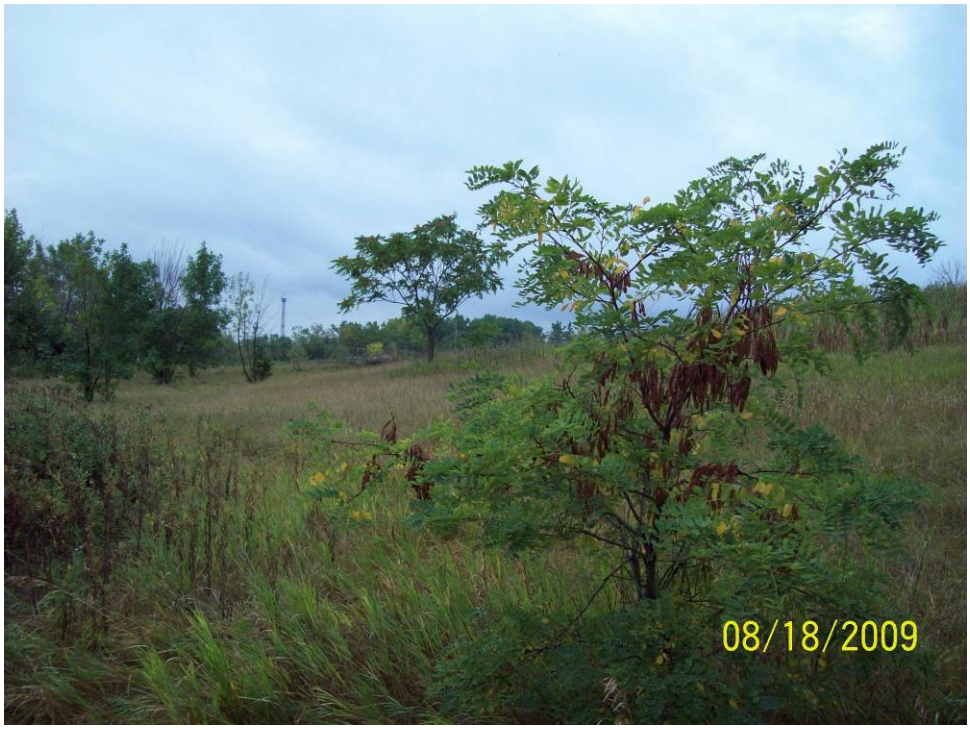
Photo Number: 003 **Date:** 8/18/2009
Direction: South **Photographer:** Ryan Green
Subject: Trees growing on the landfill cap, north end of the Site



Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 004 **Date:** 8/18/2009
Direction: West **Photographer:** Ryan Green
Subject: Trees growing on the landfill cap, near the center of the Site

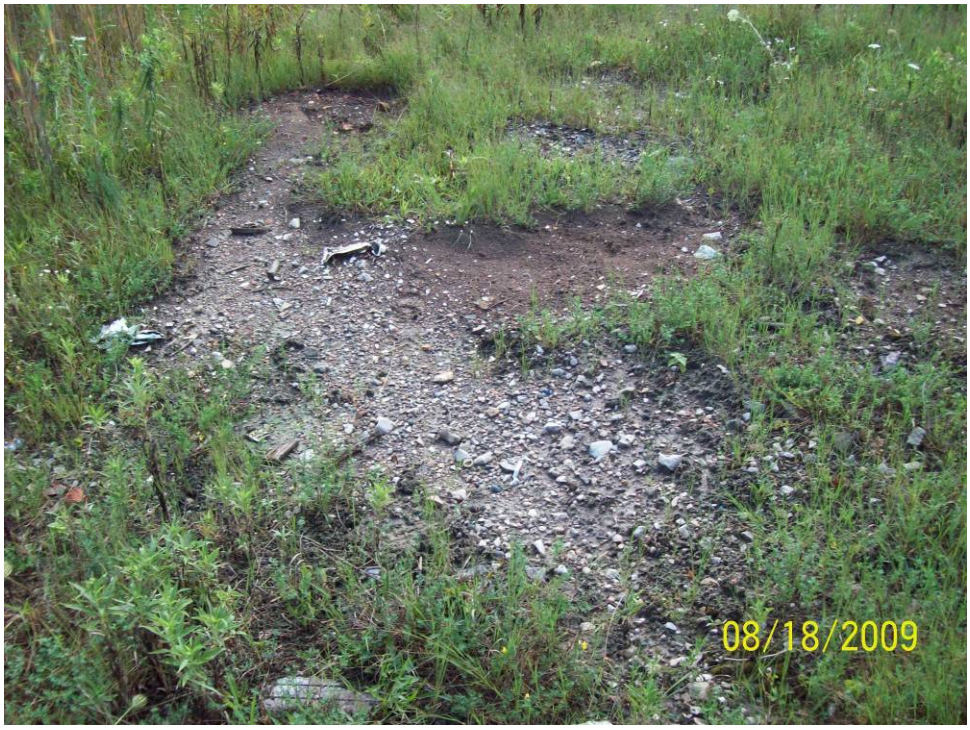


Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 005 **Date:** 8/18/2009
Direction: South **Photographer:** Sean Kane
Subject: Trees growing on the landfill cap, north end of the Site

Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 006 **Date:** 8/18/2009
Direction: West **Photographer:** Sean Kane
Subject: Trees growing on the landfill cap, west side of the Site

Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 007 **Date:** 8/18/2009
Direction: South **Photographer:** Sean Kane
Subject: Trees growing on the landfill cap, west side of the Site

Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 008 **Date:** 8/18/2009
Direction: East **Photographer:** Sean Kane
Subject: Trees growing on the landfill cap, east side of the Site



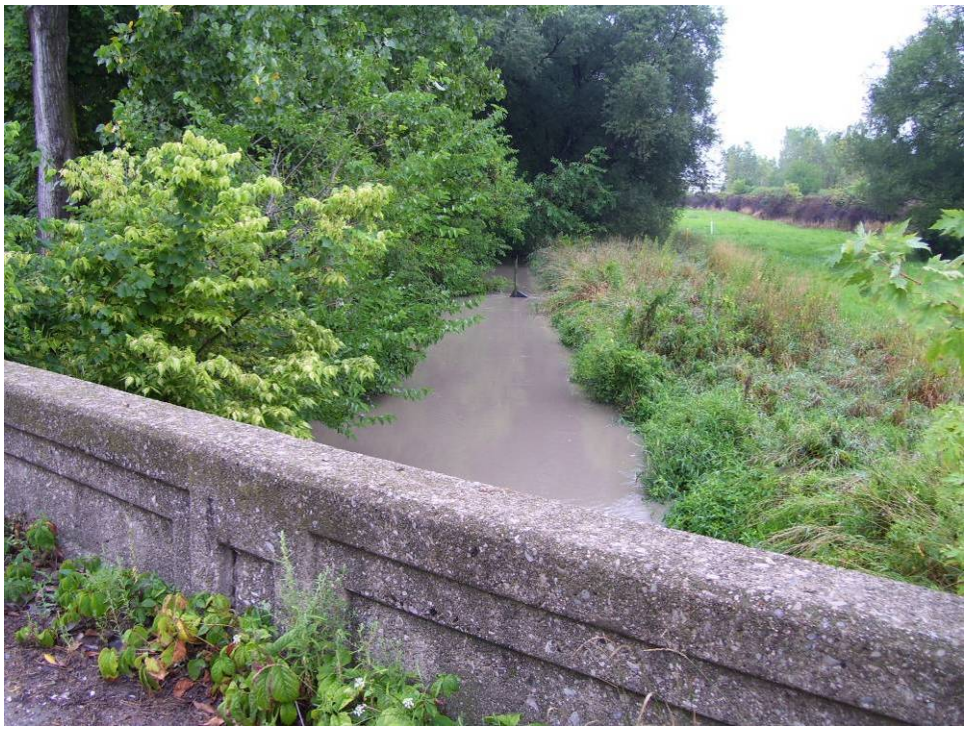
Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 009 **Date:** 8/18/2009
Direction: Down **Photographer:** Sean Kane
Subject: Distressed vegetation and washout on the landfill cap, west side of the Site

Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 010 **Date:** 8/18/2009
Direction: Southeast **Photographer:** Sean Kane
Subject: Distressed vegetation and washout on landfill cap, near center of the Site

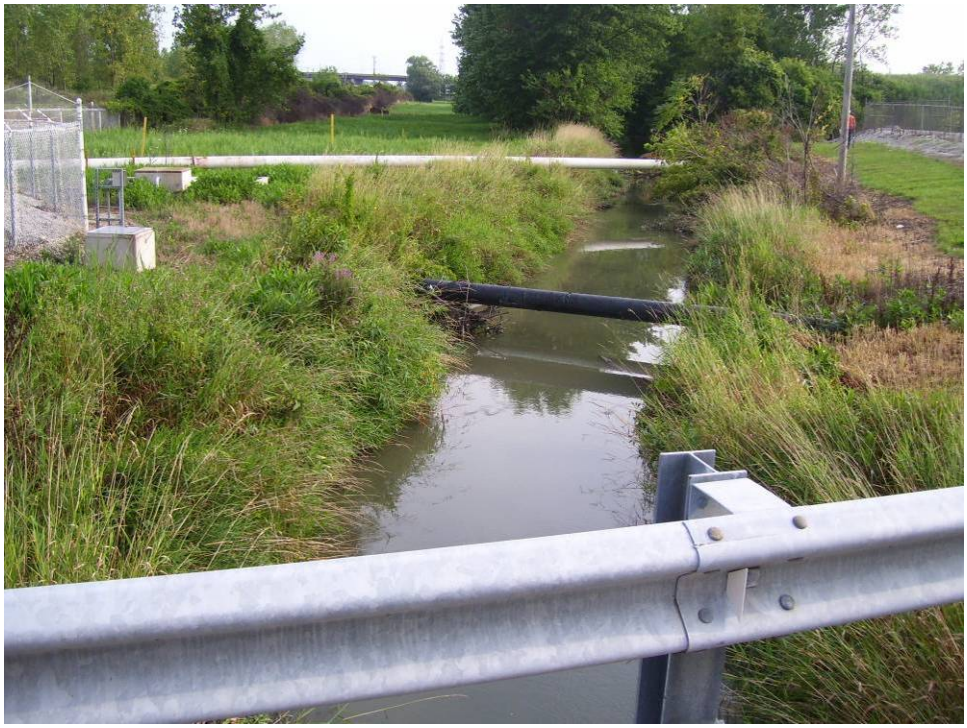
Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 011 **Date:** 8/18/2009
Direction: South **Photographer:** Sean Kane
Subject: Distressed vegetation and washout on landfill cap, west side of the Site

Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 012 **Date:** 8/18/2009
Direction: West **Photographer:** Sean Kane
Subject: Distressed vegetation and washout on landfill cap, west side of the Site

Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 013 **Date:** 8/18/2009
Direction: Down **Photographer:** Matthew Beer
Subject: Deer tracks inside the landfill fence line, west side of the Site



Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 014 **Date:** 8/18/2009
Direction: South **Photographer:** Ryan Green
Subject: Otter Creek viewed from the Millard Avenue S bridge



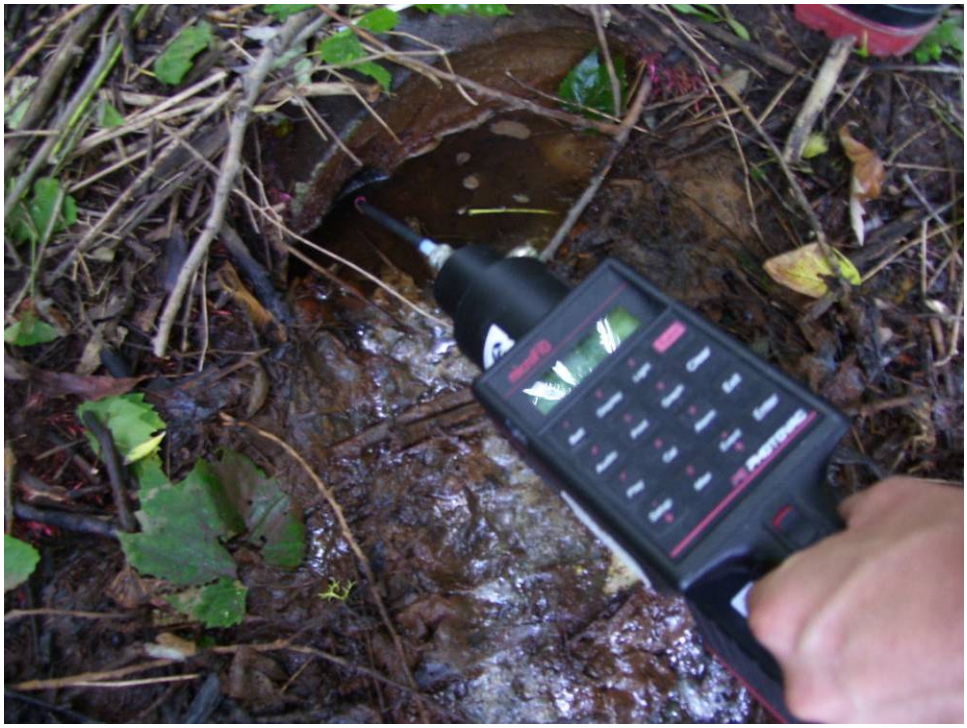
Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 015 **Date:** 8/20/2009
Direction: North **Photographer:** Ryan Green
Subject: Otter Creek viewed from the York Street bridge

Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 016 **Date:** 8/20/2009
Direction: East **Photographer:** Ryan Green
Subject: Drainage ditch along southern property line of site, landfill to the left

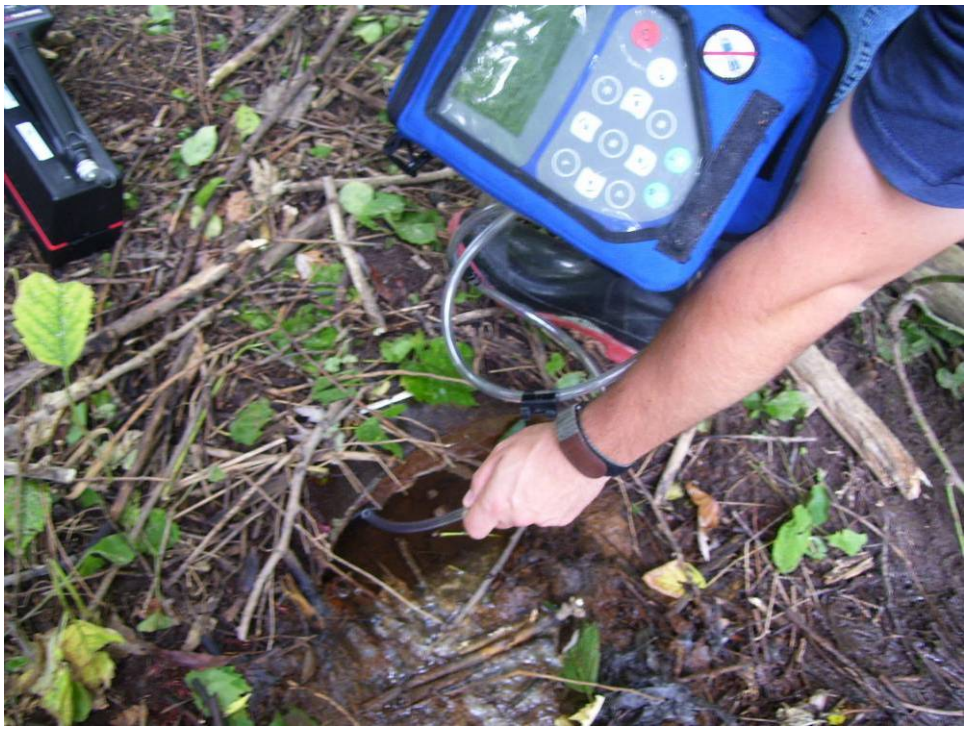
Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 017 **Date:** 8/18/2009
Direction: East **Photographer:** Sean Kane
Subject: Plugged but leaking storm water outfall pipe at the northwest corner of the Site

Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 018 **Date:** 8/18/2009
Direction: Down **Photographer:** Sean Kane
Subject: Plugged but leaking storm water outfall pipe at the northwest corner of the Site

Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 019 **Date:** 8/18/2009
Direction: West **Photographer:** Sean Kane
Subject: Leaking storm water outfall pipe at northwest corner of Site discharging into Otter Creek



Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 020 **Date:** 8/19/2009
Direction: Down **Photographer:** Ryan Green
Subject: Analyzing gases from the leaking storm water outfall with a flame ionization detector



Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 021 **Date:** 8/19/2009
Direction: Down **Photographer:** Sean Kane
Subject: Analyzing gases from the leaking storm water outfall with a landfill gas monitor

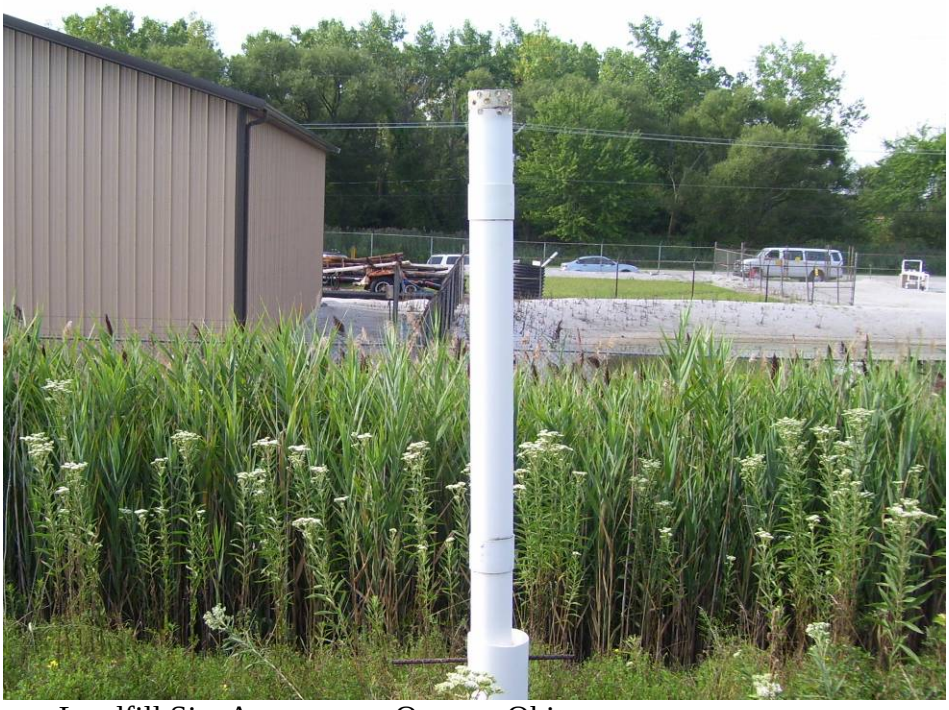
Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 022 **Date:** 8/18/2009
Direction: Down **Photographer:** Ryan Green
Subject: Analyzing gases from the leaking storm water outfall with a photo ionization detector

Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 023 **Date:** 8/18/2009
Direction: South **Photographer:** Sean Kane
Subject: Leachate collection manhole and gas vent at the southeast corner of the Site

Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 024 **Date:** 8/18/2009
Direction: Down **Photographer:** Sean Kane
Subject: Broken PVC pipe beneath concrete debris, located near the leachate collection manhole and gas vent at the southeast corner of the Site

Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 025 **Date:** 8/18/2009
Direction: Down **Photographer:** Sean Kane
Subject: Separated concrete drainage pipe located along southern property line of the Site

Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 026 **Date:** 8/19/2009
Direction: Southeast **Photographer:** Sean Kane
Subject: Uncovered landfill debris on the west slope of the landfill, adjacent to Otter Creek



Site: Westover Landfill Site Assessment, Oregon, Ohio
Photo Number: 027 **Date:** 8/18/2009
Direction: South **Photographer:** Ryan Green
Subject: Landfill gas PVC vent pipe with missing rain cap, on the south side of Site

ATTACHMENT C

ANALYTICAL SUMMARY TABLES

ATTACHMENT D

VALIDATED LABORATORY ANALYTICAL REPORT